

La Capital

Monterrey, Mexico (2014)

PRODUCTS USED:

Krytol Internal Membrane™ (KIM®) Krytol® Waterstop System

OWNER/DEVELOPER:

Desarrollos Delta

CONTRACTOR:

Maiz Mier

READY-MIX SUPPLIER:

CEMEX

APPLICATOR:

Grupo Sandstorm GAM

DISTRIBUTOR:

Kalte Waterproofing

BACKGROUND

La Capital is a multi-use building that displays distinctly modern urban architectural features, which still pay respect to the legacy of Monterrey's history and culture. To add to this atmosphere, the building is surrounded by underground springs and caves.

While atmospheric, these natural formations come with a high water table that in La Capital's case can be found only 6-7 m (19-23 ft) below ground level. That presented a challenge during La Capital's construction as the building was designed to incorporate four levels of below grade parking. If these levels of concrete parking were not waterproofed effectively, the high hydrostatic pressure could carry waterborne contaminants into the structure itself. That would eventually cause the reinforcing steel within to corrode and the concrete itself to deteriorate.

On top of this obstacle, the contractors for the building elected to use shotcrete for the four below grade levels of La Capital. That would maximize the footprint of the building while reducing construction time and costs. However, it would also increase the challenge of constructing the building as shotcrete can be difficult to waterproof, especially in below grade areas where a high water table is present.

SOLUTION

With shotcrete involved, external membranes were a less-than-ideal waterproofing option. After all, shotcrete could tear or puncture the membrane, rendering its protection useless. Realizing that, the contractors chose to go with Kryton's waterproofing admixture, KIM, instead. As an admixture, KIM only needed to be added to the concrete mix to provide it with proprietary waterproofing chemicals, making it fully part of the concrete and impossible to tear or puncture.



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Then, once its chemicals interact with water, they form millions of needle-like crystals. These crystals will then interlock with each other to fill the capillary pores and micro-cracks in the concrete, blocking the flow of water. As time passes and stresses form new cracks, any incoming moisture causes the crystals to reactivate, ensuring a continuous watertight seal that will last for La Capital's lifetime. Such blocking capabilities will remain possible even in regions with high hydrostatic pressure as KIM is specifically designed to be a permeability-reducing admixture for hydrostatic conditions as defined by the American Concrete Institute.

The contractors were delighted with this knowledge and went on with Kryton's Krytol Waterstop System to protect the surrounding construction joints and details, giving La Capital's four levels of underground parking a comprehensive waterproofing system.

